UNITED STATES PATENT AND TRADEMARK OFFICE

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10/617,042	07/11/2003	Yoshihiro Ishida	03560.003336.	3064

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/617,042	ISHIDA, YOSHIHIRO
	Examiner	Art Unit	
	Kathleen S. Yuan	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- . Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>13 December 2007</u>.

2a)☐ This action is **FINAL.** 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-15</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-11,13 and 15</u> is/are rejected.

7)☐ Claim(s) <u>12,14</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement. .

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received. .

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____ .

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

The response received on 12/13/2007 has been placed in the file and was

considered by the examiner. An action on the merit follows.

Response to Amendment

1.   The amendments filed on 13 December 2007 have been fully considered.

Response to these amendments is provided below.

Summary of Amendments/ Arguments and Examiner's Response:

2.   *The applicant has amended the independent claims to include the limitation of*

the attached information including four values. Furthermore, the applicant has added 4

claims.

3.   *The applicant has argued that Silverbrook does not teach the inputting of*

information attached to the input image that includes the head position values claimed,

and that Liu does not appear to teach the inputting of information attached to the input

image that includes head-position values used by face-detection angle range

information determination means to determine an angle range used in the process of

detecting a face.

4.   Silverbrook does teach the inputting of information attached to the input image

that includes the head position values inherently. When an image of a person is taken

standing up, which is certainly in the realm of Silverbrook because Silverbrook says that

images of people can be taken (col. 3, lines 46-52), the sensed orientation would be

indicative if the image is horizontal with the person's head on the right or left because

the sensed orientation is indicative of the orientation, which is directly related to the

orientation of the human figure in the image.

5.   The added limitations of "no significant photographing-position information"

overcomes the prior art rejections, so a new rejection is provided below.

Claim Objections

6.   Claims 1 and 5 claim, "image attached information input means for/ an image

attached information input step of: inputting information attached to the image input by

the image input means, wherein the attached information..." and is objected to because

of the following informalities: the terms are inconsistent. Please keep terms consistent,

i.e. for claim 1, "image attached information input means for inputting attached

information which is attached to the image input by the image input means, wherein the

attached information...". Appropriate correction is required.

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

8.   Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

9.   Regarding claims 1 and 5, the applicant claims that the attached information that

is used to detect a face includes at least four values, and lists the values. The

terminology is inconsistent with the subject matter that the applicant regards as their

invention, since only one of the values is the attached information. For example, for

claim 1, an appropriate correction to claim what the applicant intends as their invention,

the applicant can claim, "wherein the attached information includes one of at least four

values, one values which indicates...." This would accurately portray that the attached

information used is one value that can be chosen from the group of four or more listed.

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

11.   Claims 1, 2, 4/1, 4/2, 5, 6, 8/5, 8/6, 9/1, 9/2, 10/1, 10/2, 11/1 and 11/2 are

rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No.6597817

(Silverbrook) in view of U.S. Patent No. 7050607 (Li et al) and further in view of U.S>

Patent No. 7017115 (Hayashi).

Regarding claim 1, Silverbrook discloses an image processing apparatus

comprising (fig. 2): image input means for inputting an image: an area image sensor

(col. 3, lines 33-34), including a person's head (fig. 1); image attached information input

means for inputting information attached to the image input by the image input means:

the attached information being the corresponding orientation angle and the means

being the orientation sensor (col. 3, lines 30-32), wherein the attached information

includes at least four values, the values of the attached orientation angle, which.

indicates that an image is upright, when the camera is not rotated and the orientation

angle indicates it, for example as seen in fig. 1, photo 1; another value indicating that

the image is horizontal with the person's head on the right of the rest of the image, the

orientation angle that indicates that the camera is tilted to the right, i.e. the picture

shown in fig. 1, item 3, and another value that indicates that the image is horizontal with

the person's head on the left of the rest of the image, the orientation angle that indicates

that the camera is tilted to the left; face detection means for detecting a face from the

image input by the image input means, an algorithm that detects a face (col. 3, lines 46-

52). Silverbrook basically states that after experiencing an image input and sensing a

basic orientation, and thus finding the right side up, face detection algorithms can be

used (col. 3, lines 46-52).

Silverbrook does not disclose expressly that the algorithms include face-

detection angle-range information determination means for determining an angle range

used in a process of detecting a face from the input image on the basis of the image

attached information input by the image attached information input means; and process

control means having a mode to control the execution of the face detecting process on

the basis of information indicating the angle range determined by the face-detection

angle-range information determination means. Silverbrook further does not disclose

that one of the values of the attached information can be no significant photographing

position information.

Li et al discloses face detection angle-range information determination means, a

detector pyramid (col. 6, lines 20-22) for determining an angle range used in a process

of detecting a face from an input image (col. 6, lines 17-32) on the basis of the image

attached information input, corresponding to Silverbrook's orientated, right-side up

image, which also corresponds to Li et al using a right-side up image (fig 8), and even

going to a another step of limiting the right-side up image in sub-windows (col. 6, lines

39-41). Li et al further discloses process control means (fig. 6, fig. 3), having a mode to

control the execution of the face detecting process on the basis of information indicating

the angle range determined by the face-detection angle-range information determination

means (col. 6, lines 22-57), since the layered system has many layers or modes to

control the face detection on the basis of the indicated angle range of the layer.

Silverbrook and Li et al are combinable because they are from the same field of

endeavor, i.e. facial image processing.

At the time of the invention, it would have been obvious to a person of ordinary

skill in the art to use an angle range to detect a face.

The suggestion/motivation for doing so would have been to provide a more

thorough, more accurate recognition by considering all possible angle ranges a face

could be in.

Silverbrook (as modified by Li et al) further does not disclose that one of the values of the attached information can be no significant photographing position information.

Hayashi discloses attached information that is no significant photographing position information when showing that a tilt angle designation may not be shown when defining an image (fig. 6, tem S5, option NO).

Silverbrook (as modified by Li et al) are combinable because they are from the same field of endeavor, i.e. detecting tilt in images.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to allow for attached information to be "no information."

The suggestion/ motivation for doing so would be to provide a more robust and flexible system, allowing for further processing when no information is provided.

Therefore, it would have been obvious to combine the apparatus of Silverbrook with the range of angles of Li et al and the attached information of Hayashi to obtain the invention as specified in claim 1.

12.   Regarding claim 2, Li et al discloses that the process control means controls the execution of the face detecting process in predetermined angle increments, the predetermined angle increments being those of the different layers (col. 6, lines 25-32).

13.   Regarding claim 4/1, Li et al discloses reference data conversion means, that which captures images for training data in fig. 3, step 302 and continues to convert training data in step 304, for converting face detection reference data by cropping and normalizing, used for face detection into reference data for a tilted face, since the data

is used to train a pyramid for the classifiers which is used in the face detection (fig. 3, step 306), wherein the process control means allows the reference data conversion means to convert the face detection reference data into reference data for a tilted face in order to form tilted-face reference data in predetermined angle increments, the angle increments being the predetermined angle ranges shown in fig. 4, and the tilted-face reference data being the data that is used to train the pyramid in fig. 3 step 306, and executes the face detecting process to the input image using the formed tilted-face reference data, since the reference data is used to train the pyramid (fig. 4).

14.   Claim 5 is rejected for the same reasons as claim 1. Thus, the arguments analogous to that presented above for claim 1 are equally applicable to claim 5. Claim 5 distinguishes from claim 1 only in that claim 5 is an image processing method, and claim 1 is an apparatus. Since an apparatus carries out a method, prior art applies.

15.   Claim 6 is rejected for the same reasons as claim 2. Thus, the arguments analogous to that presented above for claim 2 are equally applicable to claim 6. Claim 6 distinguishes from claim 2 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

16.   Claims 4/2, 8/5 and 8/6 are rejected for the same reasons as claim 4/1. Thus, the arguments analogous to that presented above for claim 4/1 are equally applicable to claims 4/2, 8/5 and 8/6. Claims 4/2, 8/5 and 8/6 distinguish from claim 4/1 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

17.   Claims 9/1, 9/2 10/5, 10/6, 11/5 and 11/6 are rejected for the same reasons as

claim 1. Thus, the arguments analogous to that presented above for claim 1 are equally

applicable to claims 9/1, 9/2 10/5, 10/6, 11/6 and 11/5. Claims 9/1, 9/2 10/5, 10/6, 11/6

and 11/5 distinguish from claim 1 only in that claims 9/1, 9/2 10/5, 10/6, 11/6 and 11/5

are program and storage medium claims and claim 1 is an apparatus claim and they

have different dependencies. Since all the dependencies have been previously

rejected, and since the preamble to the claim is not given any patentable weight

because it doesn't breath life or vitality into the claim, and since all other limitations are

addressed in claim 1, prior art applies.

18.   Regarding claim 13, Li et al discloses that in the case when the value is different

from zero (i.e. the value of Silverbrook's orientation angle is different from 0), the angle

range is set to ±90 degrees around a central axis because Li et al sets the angle range

to ±90 degrees (fig. 4, item 402).

19.   Claim 15 is rejected for the same reasons as claim 13. Thus, the arguments

analogous to that presented above for claim 13 are equally applicable to claim 15.

Claim 15 distinguishes from claim 13 only in that they have different dependencies, both

of which have been previously rejected. Therefore, prior art applies.

20.   Claims 3/1, 3/2, 7/5 and 7/6 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Silverbrook in view of Li et al and Hayashi, as applied to claims 1, 2,

5 and 6 above, and further in view of U.S. Patent Application Publication No

20010019620 (Nagai et al).

Regarding claim 3/1, Silverbrook (as modified by Li et al and Hayashi) discloses all of the claimed elements as set forth above and incorporated herein by reference.

Silverbrook (as modified by Li et al and Hayashi) does not disclose expressly image rotation means for rotating an input image, wherein the process control means allows the image rotation means to rotate the input image in order to form images in predetermined angle increments, and performs the face detecting process to the respective images.

Nagai et al discloses image rotation means (fig. 4) for rotating an image, since an image is rotated around an axis by taking more images at a different rotation angle (fig. 4, item 108 and 109), wherein the process control means allows the image rotation means to rotate the input image in order to form images in predetermined angle increments, the angle increments being the predetermined distance (page 4, paragraph 0059) around the subject and thus a predetermined angle (fig. 2), and performs a face detecting process to the respective images by detecting skin color ratio and thus the face detecting (fig. 4, step 104). It is noted Nagai has a different way of detecting the face as Li et al does, but they are both face detection processes and thus both applicable to each other.

Silverbrook (as modified by Li et al and Hayashi) and Nagai et al are combinable because they are from the same field of endeavor, i.e. face detection.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to form images around the input image.

The suggestion/motivation for doing so would have been to provide a more robust system, and a more widely applicable system by allowing the system to obtain an optimal image.

Therefore, it would have been obvious to combine the apparatus of Silverbrook (as modified by Li et al and Hayashi) with the multiple images of Nagai et al to obtain the invention as specified in claim 3/1.

21.   Claims 3/2, 7/5 and 7/6 are rejected for the same reasons as claim 3/1. Thus, the arguments analogous to that presented above for claim 3/1 are equally applicable to claims 3/2, 7/5 and 7/6. Claims 3/2, 7/5 and 7/6 distinguish from claim 3/1 only in that they have different dependencies, both of which have been previously rejected. Therefore, prior art applies.

Allowable Subject Matter

22.   Claims 12 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

23.   Claims 12 and 14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

24.   Claims 12 and 14 contain allowable subject matter that if the value is zero, than the angle range is set to 0 to 360 degrees

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen S. Yuan whose telephone number is (571)272-2902. The examiner can normally be reached on Monday to Thursdays, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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1/8/2008

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